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ABSTRACT

The literature concerning tutoring in the elementary schools was surveyed and evaluated to determine the relative effectiveness of two types of programs--peer and cross-age tutoring. Studies involving each type of program were analyzed separately and effectiveness was judged by the gains in reading achievement experienced by both tutors and learners as measured by various tests. The survey revealed a noticeable lack of same-age tutoring programs containing adequate data for analysis. Because of this lack, the effects of the two types of programs could not be determined. This finding suggests that more peer tutoring studies of a controlled nature be undertaken. (FL)

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A COMPARISON OF THE EFFECTS OF CROSS-AGE AND SAME-AGE TUTORING ON THE READING ACHIEVEMENT OF ELEMENTARY SCHOOL STUDENTS

A Thesis

Presented to

the Faculty of the School of Professional Studies

Potsdam College of Arts and Science

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In Partial Fulfillment

of the Requirements for

the Reading Specialist's Certificate

by

Susan G. Gibbs

November, 1982

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CHAPTER I

INTRODUCTION

Since the advent of man on earth tutoring has held a valued position in both socialization and educational processes. The concept of older children or adults helping and teaching younger children was the accepted means of helping the learners take their places in society. In fact, until the seventeenth century children in Europe mixed freely with adult society as soon as they could function without the constant care of their mothers. At that time "the art of work and the art of living were both acquired through direct contact with older children and adults."[1]

With the institution of schools and the subsequent grouping together of students learning the same lessons, age differentiation began to appear and the free intermingling of learners of various ages decreased notably. By utilizing older, more knowledgeable students as tutors for individuals or small groups, and by assigning them as assistant teachers, Joseph Lancaster, a nineteenth-century educator in England, may receive credit for reinstituting the tutoring system.

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[1]Vernon L. Allen (ed.), Children as Teachers: Theory and Research on Tutoring (New York: Academic Press, 1976), p. 11.

He claimed that by means of that "ripple effect," one thousand students could be taught by a single adult teacher.[2]

One-room schools of the more recent past provided ample opportunities for older students to help teach younger ones. However, as large, centralized school districts replaced these smaller, local schools, self-contained classrooms consisting of a single age group and taught by a single teacher reduced again the chances of age-interaction.

There is now a growing movement in education toward the utilization of students as teachers of other students. Not only do the tutors provide a valuable teaching service, but they also reap the rewards of learning through helping others, filling thereby both affective and cognitive needs.[3]

The teaching which takes place may be done by older students (cross-age tutoring) or by classmates (peer or same-age tutoring). Both types can bring about significant positive changes in both the affective and cognitive domains. Many reports of tutoring projects and research studies claim improved test scores as a result of the tutoring situation. Little has been written, however, about the comparative effects of the two types of programs for a given age group.

Statement of the problem. It was decided, therefore,

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[2]Ibid., p. 13.

[3]Ralph J. Melaragno, Tutoring with Students: A Handbook for Establishing Tutorial Programs in Schools (Englewood Cliffs, New Jersey: Educational Technology Publications, 1976), p. 5.

to undertake a research project in which reports of several same-age tutoring programs and several cross-age tutoring programs would be evaluated. Effectiveness of these programs will be judged by comparing the amount of growth in reading skill as indicated by scores on standardized reading achievement tests.

The following hypothesis will be tested: There will be a significant difference between the reading achievement scores of elementary school students who have been involved in a cross-age tutoring program and the reading achievement scores of elementary school students who have been involved in a same-age tutoring program.

Significance of the problem. The fact that tutoring programs are becoming more and more common is one indication of the perceived need for assistance beyond that offered by the regular classroom teacher. The inclusion of tutoring programs in curriculum development projects reflects the value placed on them in many school districts. Not only do learners and tutors improve skills and attitudes, according to most evaluations, but the district itself profits financially when this valuable resource is tapped.

When the decision has been made to establish a tutoring program, it is important that administrators select the type of program which will be most effective with those for whom it is intended. The implementors should know which

type of program has proven more effective with various age groups in order to make the proper decision about setting up or modifying programs.

Purposes of the study. This project will attempt to determine which type of tutoring program is most effective in improving the reading scores of the learners. Two additional effects will also be investigated: the effect of the tutoring program on the reading achievement scores of the tutors, and the attitudinal change brought about by the tutoring program.

Assumptions and limitations. The following assumptions underlie this report:

(1) that previous research investigated was conducted appropriately and reported accurately;

(2) that testing instruments employed were reliable and valid, and were administered as directed;

(3) that the non-research projects were conducted and evaluated as reported.

This study will be limited to research and tutoring projects which involved students from kindergarten through grade six, since the majority of the available reports deal with those grades. The results of this study are intended to be of value to school administrators and others responsible for implementing and maintaining effective teaching-learning situations in elementary schools.

Definitions of terms. For the purposes of this report, the following definitions are employed:

tutor: the student who teaches, reinforces, or provides practice in specific reading skills;

learner (also called "tutee"): the student who receives the teaching, reinforcement, or practice from the tutor;

same-age tutoring: a tutoring situation in which the tutor and learner are classmates or in the same grade;

cross-age tutoring: a tutoring situation in which the tutor is an older, more advanced student than the learner. The tutor is usually two or more grades beyond the learner in school.

CHAPTER II

REVIEW OF RELATED LITERATURE

A peer tutoring situation has been defined as one in which "a student who has developed certain skills and understandings tutors another, whose development in a certain specific area is not so advanced, even though the two may be of the same age."[1] Cross-age tutoring consists of "older, more advanced children teaching younger, less advanced ones."[2] From such straightforward definitions it may not be apparent that tutoring programs encompass far more than the tutor-learner relationship alone. In this chapter will be discussed the value of such programs, elements of effective programs, and steps to be followed in their establishment.

Value of tutoring programs. Inherent in effective programs are such factors as the following:

(1) parents, teachers, and administrators all working together on behalf of students;

(2) fostering a spirit of community;

(3) improving the academic skills of tutors and learners;

(4) developing positive attitudes towards self, others,

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[1]Arthur H. Elliott, "Turning It Around in Education with Student Tutoring," The Clearing House, L (March, 1977), p. 280.

[2]Ibid.

school, formal education, and learning in general.[3]

Many teachers have found peer tutoring to be useful in implementing individualized instruction while maintaining positive interaction among students.[4] Ehly and Larsen report having observed tutors "assuming a variety of roles to meet the academic and the affective needs of their peers."[5] They state that young tutors, unlike many adults, view the teaching-learning situation as one to be accepted in a businesslike manner, without explanation or apology.

Thelen also claims that tutoring by students helps meet the needs of individual students (which schools must do if they are to keep students in school, teach them to read, and help them earn high school diplomas).[6]

Other researchers found that while affective gains are often imprecisely evaluated, nearly all studies did report more positive attitudes of tutors and tutees (as determined by rating scales), and often improved behavior, especially by

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[3]Ralph J. Melaragno, Tutoring with Students: A Handbook for Establishing Tutorial Programs in Schools (Englewood Cliffs, New Jersey: Educational Technology Publications, 1976), p. 6.

[4]Karen Steiner, "Peer Tutoring in the Reading Class," Journal of Reading, XXI (December, 1977), p. 266.

[5]Stewart W. Ehly and Stephen C. Larsen, "Peer Tutoring to Individualize Instruction," Elementary School Journal, LXXVI (May, 1976), p. 475.

[6]Herbert Thelen, "Tutoring by Students," School Review, LXXVII (September-December, 1969), p. 236.

previously disruptive tutors.[7] The improved sense of responsibility, self-image, and greater concern for others are seen as more positive additional benefits for tutors.[8] In his discussion of the value of tutoring programs for the tutors, Herbert Thelen states:

> The idea of students learning through helping each other is a very promising alternative to the traditional system of learning through competing with each other. It also makes the acquisition of knowledge and skills valuable, not in the service of competition for grades, but as the means for personally significant interactions with others.[9]

Many evaluations of the cognitive gains brought about by tutoring programs are no more than subjective reports or case studies. Others, however, have been more exact in judging the effectiveness of such programs. Several may be cited which support the claims of tutoring advocates that a strong program will bring about gains in reading achievement for tutors and learners.

(1) High school students in New York City tutored elementary students for five months. The elementary students raised their reading scores by an average of six months. The older students improved an average of three

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[7]Nancy A. Mavrogenes and Nancy D. Galen, "Cross-Age Tutoring: Why and How?", Journal of Reading, XXII (January, 1979), p. 346.

[8]Ibid., p. 345.

[9]Thelen, loc. cit.

years and four months.[10]

(2) Learning-disabled students were able to tutor their resource room classmates so effectively that their reading scores on a criterion-referenced test significantly exceeded those of the teacher-instructed control group.[11]

(3) At the Soto Street School in Los Angeles, "Programmed Tutoring in Reading" was considered responsible for the growth in reading ability shown over a six-year period. When the program was initiated in 1966-67 fewer than five percent of the first grade students scored at the fourth stanine or higher on standardized reading tests. In 1970-71, as fifth graders, eighty-one percent of those students scored at the fourth stanine or higher.[12]

(4) In a program of reciprocal peer tutoring, significantly higher scores on the Slosson Oral Reading Test were obtained by the peer-tutored students than by the adult-tutored students with whom they were compared.[13]

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[10]Melaragno, op. cit., p. 6.

[11]Lee Epstein, "The Effects of Intraclass Peer Tutoring on the Vocabulary Development of Learning Disabled Children," Journal of Learning Disabilities, XI (October, 1978), p. 520.

[12]Elliott, op. cit., p. 288.

[13]Amy Roseman Allen and Nancy Boraks, "Peer Tutoring: Putting It To the Test," The Reading Teacher, XXXII (December, 1978), pp. 276, 277.

These four reports exemplify the reading achievement gains shown by both tutors and tutees in various types of tutoring programs.

Elements of effective tutoring programs. There appears to be a consensus among those educators who have studied and dealt directly with tutoring programs that several elements are common to effective programs. According to Peggy Lippitt, who has worked extensively with such programs in Michigan, the attitudes of those involved are key factors in the success of tutoring programs.[14] Steiner cites evidence that the achievement level of tutors, the amount and quality of training given the tutors in reinforcement and corrective feedback procedures, and tutors' expectation of tutees' performance may affect the outcome of student-to-student teaching.[15]

In their review of research, Feldman, Devin-Sheehan, and Allen found that the personal characteristics of the tutor and the learner seem to affect the outcome of tutoring.[16] They listed several additional factors which may

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[14]Peggy Lippitt, Students Teach Students (Bloomington, Indiana: Phi Delta Kappa Foundation, 1975), pp. 31-33.

[15]Steiner, op. cit., p. 268.

[16]Robert S. Feldman, Linda Devin-Sheehan, and Vernon L. Allen, "Children Tutoring Children: A Critical Review of Research," Children As Teachers: Theory and Research on Tutoring, Vernon L. Allen, editor (New York: Academic Press, 1976), pp. 236-246.

affect results, but for which adequate support is not available (race and socioeconomic status; sex; age difference between tutor and tutee; duration of all tutoring sessions; length of individual sessions; number of tutees per tutor; training given tutors; and tutor-tutee interaction during sessions). They suggest that controlled research be undertaken to investigate the impact of these variables.

Steps in establishing tutoring programs. A sequential development is implicit in the procedure for establishing a tutoring program. Melaragno refers to these phases as exploration, planning, preparation, and implementation.[17] Included in the "exploration" phase are the assessment of need and the decision to adopt a tutoring program. This step involves convincing both staff and parents of its value. In the second stage specific plans are made for the tutoring. The instructional area is selected, objectives determined, and evaluation and tutoring procedures chosen. The "preparation" phase provides teachers and student tutors with training for their responsibilities in the program. In the final step, "implementation," the tutoring process is carried out. Children teach other children, with the assistance and supervision of adult teachers, for an established period of time. Lippitt stresses the importance of regularly

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[17]Melaragno, op. cit., p. 10.

scheduled teacher-teacher and teacher-student conferences.[18]

The procedures outlined above provide a very general guide for establishing tutoring programs. Some authorities have added or combined steps. Lundell and Brown, for example, include selection of learners and tutors as separate, individual steps in setting up their program.[19] Nevertheless, all sources concur that thorough planning is a sound and necessary foundation upon which to build a program.

Summary. This chapter has reviewed literature related to three aspects of tutoring programs: their cognitive and affective value for tutors and learners; variables which affect such programs; and the steps involved in their establishment. In stating his belief that educators who have developed and worked with tutoring feel that it does work, Thelen concludes: "I can think of no innovation which has been so consistently perceived as successful."[20]

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[18]Lippitt, op. cit., p. 33.

[19]Keith T. Lundell and William E. Brown, "Peer Tutoring: An Economical Instructional Model," Academic Therapy, XIV (January, 1979), p. 287.

[20]Thelen, op. cit., p. 230.

CHAPTER III

DESIGN OF THE STUDY

The historical nature of this study permits a simple design.

Procedures. The available literature concerning tutoring in elementary schools will be surveyed and evaluated. Studies involving same-age tutoring and cross-age tutoring will be analyzed separately to determine the average improvement in reading scores.

Attention will be paid to the number of students, grade level, length of tutoring treatment, length of each tutoring session, training received by tutors, and change in reading achievement scores (between pre- and posttests). The results of the same-age and cross-age tutoring programs on both tutors and tutees will then be compared. Changes in attitude as reported by the original evaluators will also be noted for each group (same-age tutors and learners, and cross-age tutors and learners).

Sources of data. Data will be obtained from several sources: professional books and journals in the areas of reading, language arts, psychology, learning disabilities, educational administration, and others.

Methods of gathering data. Studies and reports will be divided into two groups: those dealing with same-age tutoring

and those dealing with cross-age tutoring. Individual studies will be discussed, noting grade level of tutors and learners, number of students involved, length of individual tutoring sessions, duration of total tutoring program, training received by tutors, learner and tutor improvement in reading achievement (in months and/or years), instrument used to determine such growth, and significance of the results. Tables will be constructed where possible. Logical analysis will be employed in determining effectiveness of programs. Attitudinal changes, as described by the primary evaluators, will also be discussed.

Data-gathering instruments used. Since no such instruments are required for this report, only those reading tests and other instruments employed in the studies and projects evaluated will be described, and their reliability and validity discussed.

CHAPTER IV

PRESENTATION OF DATA

In the investigation of tutoring reports for this study, the author discovered that there is a significant lack of controlled research in tutoring. Many case studies and reports of tutoring projects have been published, but few contain all of the elements necessary to complete this project as designed.

Many reports, although providing detailed information about the rationale and organization of the tutoring program, do not offer the statistical information sought (e.g. number of learners, exact length of each tutoring session, increase or decrease in reading achievement score, or age or grade level of tutors). In addition, very few same-age projects have been reported for which any statistical information is given.

Therefore, the author has selected for analysis the seven cross-age and four same-age projects which provide the most information upon which to base any conclusions that might be drawn.

Same-age tutoring projects. Devin-Sheehan and others describe several tutoring projects in the article, "Research on Children Tutoring Children: A Critical Review" (in Review of Educational Research, volume 46, Summer, 1976, pages

355-385). The study by Mollod[1] was limited to three classes of second and third graders. The more able students were selected as tutors. The control group (also three classes from each grade) spent two and one-half hours weekly on word knowledge instruction (from the teacher) and four hours on reading comprehension. The experimental group spent one and one-quarter hours on word knowledge and two hours on reading comprehension receiving regular classroom instruction, and the remaining half of the time being tutored. The program lasted for four months and resulted in significantly greater gains for both tutors and tutees (over their controls' gains) in word knowledge, although not in reading comprehension. Self-concept was not investigated in this study.

A second same-age study involved 424 fourth graders from eight rural elementary schools.[2] The Hoyum-Sanders Elementary English Test[3] was used to assess achievement gains. This project was designed to determine the comparative effects of team rewards or individual rewards when

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[1]Linda Devin-Sheehan, Robert S. Feldman, and Vernon L. Allen, "Research on Children Tutoring Children: A Critical Review," Review of Educational Research, XLVI (Summer, 1976), 362-363.

[2]Robert E. Slavin, "Student Teams and Achievement Divisions," Journal of Research and Development in Education, XII (1978), 39-49.

[3]Split-half reliabilities for this test range from .86 to .93, according to Buros' Seventh Mental Measurements Yearbook.

coupled with peer tutoring, and without peer tutoring. In this situation, "peer tutoring" consisted only in working together and helping one another for nine weeks. There was no mention of tutor training. The researcher found no significant differences between the tutoring and non-tutoring groups in attitude or achievement. Differences in achievement were felt to be due to the team reward technique.

A third study compared reciprocal peer tutoring (students alternate in roles of learner and teacher) with tutoring by adults (college students enrolled in education classes).[4] The tutees (and tutors, in the reciprocal groups) were students from grades two through five who had been selected by their teachers as needing remedial reading instruction. In the Reciprocal Peer Tutoring group, for part of each session the college student assigned to the team taught or reviewed a tutoring behavior. Then the two young students took turns teaching each other. In the direct tutoring group, the college tutors themselves taught the younger pupils. Each group participated in two fifty-minute sessions per week for twelve weeks. The Slosson Oral Reading Test[5] was used for pre- and post-testing.

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[4]Amy Roseman Allen and Nancy Boraks, "Peer Tutoring: Putting It To the Test," The Reading Teacher, XXXII (December, 1978), 274-278.

[5]In his description of the Slosson Oral Reading Test (which is included on the individual record sheets) Richard L. Slosson claims a reliability coefficient of .99, using the test-retest method with an interval of one week.

The investigators found that the reading gain of the Reciprocal Peer Tutoring group was .97, while that of the "directly tutored" group was .35 (significant at greater than .01). Attitude was not discussed in this study.

In his study on same-age tutoring, Lee Epstein[6] found that mildly handicapped children (learning disabled) can effectively tutor their less able classmates in reading (specifically, word recognition). The 200 participants, from primary level learning disabilities classrooms, were selected on the basis of scores on tests administered by trained testers (The instruments used as pre- and posttests were not named.) and identified as tutors or tutees. Tutors then received individual training in the specific techniques involved in the tutoring program and in establishing positive interpersonal relationships. Epstein compared posttest results of the peer-tutored group and four control groups. He found that the tutored group performed significantly better (at a level of confidence greater than .001) than any of the control groups. He concluded that intraclass peer tutoring in classrooms for mildly handicapped students can be effective. Self-concept was not discussed in his report.

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[6]Lee Epstein, "The Effects of Intraclass Peer Tutoring on the Vocabulary Development of Learning Disabled Children," Journal of Learning Disabilities, XI (October, 1978), 63-66.

It is apparent that sufficient hard data to enable definite conclusions to be drawn are not included in the studies described above. Nevertheless, it is clear that tutoring by students of the same age as the learners may be very helpful in improving the reading achievement of both tutors and tutees.

Cross-age tutoring projects. One of the most complete reports of cross-age tutoring is that of Trovato and Bucher.[7] The tutees were sixty-nine second, third, and fourth grade students from seven different elementary schools who were deficient in reading skills, and the tutors were sixth, seventh, and eighth grade students from the same schools. Training for the tutors consisted of three one and one-half hour sessions, and was provided by the Learning Resource teacher. The Spache Diagnostic Reading Test[8] (oral reading and comprehension) was used as a pre- and posttest. Three groups were established: a control group, a tutoring group, and a tutoring group with home reinforcement. The latter group received points that could be exchanged for rewards at home. Both tutoring groups received thirty minutes of tutoring instruction during each school day for

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[7]Joseph Trovato and Bradley Bucher, "Peer Tutoring With or Without Home-Based Reinforcement for Reading Remediation," Journal of Applied Behavior Analysis, XIII (Spring, 1980), 128-141.

[8]According to Buros' Eighth Mental Measurements Yearbook, using the test-retest procedure, reliabilities for the word recognition portion of that test range from .91 to .96.

fifteen weeks. The investigators found that the gains in oral reading accuracy of the tutoring and tutoring with home-based reinforcement groups surpassed those of the control group at a significant level (.77 for the tutoring group, 1.27 for the tutoring-with-reinforcement group, and .19 for control). Comprehension gains, respectively, were .50, 1.04, and -.13.

"Programmed Tutoring in Reading" was the name given to the project conducted at the Soto Street School in Los Angeles.[9] This program was developed to improve reading achievement throughout the school, which was located in a Spanish-speaking area, and included many children for whom English was the second language. It began informally when a first grade teacher requested an upper grade girl to help with her less capable students. As more help was needed, older remedial students were assigned to help younger poor readers. From those beginnings developed a highly organized program in which every child in the school was involved as a tutor or tutee--or both! The upper grade tutors' training included a slide-tape sequence and instruction on the use of the kit of materials used by each tutor-tutee team. The tutoring sessions lasted for twenty minutes each school day throughout the year. Results of the program raised the

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[9]Arthur H. Elliott, "Turning It Around in Education with Student Tutoring," Clearing House, L (March, 1977), 285-290.

Soto Street School from one whose students scored considerably below average (on the Stanford Reading Test[10]) to a definitely above-average level (on the California Test of Basic Skills[11]). At the beginning of the program (1966-1967) only four percent of the school's first graders were reading at the fourth stanine or above. After five years, fifty-five percent of those same students (who had been in first grade at the beginning of the program) were at that level. In 1971-1972 seventy-one percent of the students in the school were reading at that level. Although statistics were not available to document increased self-concept, on the part of the tutors especially, Mr. E. Ebersole, the originator of the program, noted the positive attitude change in children when they were responsible for helping others.[12]

A project in which the tutors were high school sophomores and juniors and were paid for their services was reported by Cloward.[13] All students (tutors and tutees) were from mixed-

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[10]In reporting on this test in Buros' Seventh Mental Measurements Yearbook, the evaluator stated that "reliabilities of the scores on the Stanford Reading Tests are high enough to warrant use of the Stanford tests in appraising the reading ability of individual pupils." (p. 1102)

[11]No information regarding reliability or validity of the test was found. The Sixth Mental Measurements Yearbook (volume I, pages 21 and 22) suggests use of the newer California Achievement Tests.

[12]Elliott, op. cit., p. 288.

[13]Robert D. Cloward, "Studies in Tutoring," Journal of Experimental Education, XXXVI (1967), 14-25.

ethnic-group inner city schools. The 350 tutees were fourth and fifth graders with below-level reading achievement. The 240 tutors had an average reading level of 10.0 at the beginning of the program. They received pre-service training four afternoons a week for two weeks and in-service training for two hours each week. The duration of the program was from November to June (1964). The tutoring sessions were held from three until five on either one or two days each week. Control groups were established for both tutees and tutors. Results for the younger students were given in raw score increase on the New York Tests of Growth in Reading, Level C, Form 1.[14] For the tutees, the score gain of the experimental group was 4.85, and that of the control group was 3.96. For the tutors, the median standard score gain on the Iowa Silent Reading Tests[15] was 13.2, and that of the control group, 7.6. Only the latter were found to be significant. A fifty-four item questionnaire given to tutors and tutees did not show a significant change in attitude on the part of either group.

Primary students can successfully tutor younger students,

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[14]This test is not listed in Buros' Tests in Print II.

[15]The Iowa Silent Reading Tests (grades 9-14) have reliability coefficients (using Kuder-Richardson 21) of .86 for vocabulary and .83 for comprehension, according to the Sixth Mental Measurements Yearbook (page 1198). Also, the reviewer stated that while validity data given by the publisher are less than adequate, the tests correlate highly with the Metropolitan Achievement Tests in concurrent validity (.70's and .80's).

according to a study by Duff and Swick.[16] Both tutors and tutees selected were of average intelligence and below-grade-level reading achievement. There were fifteen tutors from grades three and four, and fifteen students from these grades selected as controls. The fifteen tutees, and their control counterparts, were from grades one and two. The Metropolitan Achievement Test, Forms F and H, was used as a pre- and posttest to assess reading gain, and the More Like Me Scale for Young Children and the Children's Self-Descriptive Scale were used to evaluate self-concept.[17] Tutor training consisted of five thirty-to-forty minute sessions on each of five consecutive days. The tutoring sessions, which also lasted from thirty to forty minutes, were held once daily for six weeks. Statistical analysis of test scores indicated a significant difference between tutees' and controls' change scores (2.05). Although not statistically significant, it was apparent that a positive change occured also in the reading performance of the tutors, and in the self-concept of both tutors and tutees.

In a fifth study, fifth and sixth graders were trained to tutor first, second, and third grade students whose

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[16]R. Eleanor Duff and Kevin Swick, "Primary Level Tutors as an Instructional Resource," Reading Improvement, XI (Winter, 1974), 39-44.

[17]No mention was made in Tests in Print II of the two attitude tests. The Eighth Mental Measurements Yearbook gives corrected split-half reliability coefficients (Kuder-Richardson 20) at an "acceptably high" level for the reading subtest of the Metropolitan Achievement Tests. (page 1203)

reading achievement was below their expected level.[18] The forty tutors, all volunteers, were matched with the forty tutees according to sex, racial-ethnic status, and respective reading achievement levels. The tutors were trained in four sessions in the use of appropriate tutoring techniques. Group meetings with tutors and supervisors were held once each week. The tutoring sessions were held for twenty minutes (before school began) on Monday through Thursday, and lasted for eight weeks. The Metropolitan Achievement Test was used to assess reading improvement in grades two through six, and an adapted version of the Letter Names Test (Murphy-Durrell Reading Readiness Analysis) was employed for first graders. Also, a word recognition test containing ninety-six words taken from materials used in this study was given to all tutored students. The researchers found that the tutees gained significantly more than their controls on the word recognition test, but that differences on the Metropolitan Achievement Test were not statistically significant. Also, tutors' gain scores did not differ significantly from those of their controls. It should be noted that the younger children did show measurable gains in reading development, although the differences between the tutored gain

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[18]Matthew Snapp, Thomas Oakland, and Fern C. Williams, "A Study of Individualizing Instruction by Using Elementary School Children as Tutors," Journal of School Psychology, X (1972), 1-7.

scores and the control scores were not significant. Self-concept was not investigated.

Fifth graders were also used as tutors in a project reported by Robertson and Sharp.[19] In an experiment utilizing thirty-three fifth grade students who were identified as low achievers in reading, sixty-six first graders who needed help in recognizing sight words were divided equally into experimental and control groups. The experimental group received thirty minutes of tutoring on three days of each week for two months. The fifth grade tutors had been trained (in four one-hour sessions) in tutor behavior, tutoring skills and procedures, program objectives, and tutoring materials. The Primary Word Recognition section of the Gates-MacGinitie Reading Test (1964) was used as pre- and posttest.[20] Results showed that while both control and experimental groups made significant gains, the experimental group gained significantly more (at a confidence level of .05). Tutees' mean score gain was 15.40 and controls' gain was 8.07.

One of the few studies which reported achievement gains by both tutees and tutors, and discussed attitudinal changes, involved eight previously disruptive eighth and ninth grade

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[19]Douglas J. Robertson and Vicki Friedman Sharp, "The Effect of Fifth Grade Student Tutors on the Sight Word Vocabulary Attainment of First Graders," ED 055 735 (1971).

[20]The Seventh Mental Measurements Yearbook reports that alternate-form reliabilities on the Gates-MacGinitie test range from .78 to .89 for most subtests.

students as tutors for eight younger students who had similar problems in school.[21] The program was designed to motivate the maladjusted older students, with the hope of improving their self-concept, and therefore their adjustment to society. The tutors were chosen by guidance counselors and teachers on the basis of a behavior rating scale. All eight were non-truants. They were trained to use the Intersensory Reading Method, a programmed phonic-linguistic approach which involves reading, writing, and spelling at the same time.[22] After tutoring began, "rap sessions" were held every two weeks to help tutors solve any problems which had arisen in their tutoring. The younger students were tutored twice a week for seven months. The length of the tutoring sessions was not given. Supervision was provided by a trained college student. Two psychologists who served as group leaders for the "rap sessions" steered those discussions toward self-concept building. The Metropolitan Achievement Test (Reading) was used as pre- and posttest. The tutees' mean gain score was 1.2 (fourteen months), and the tutors' gain score was 1.7 (nineteen months). Both were considered significant by the authors. In addition, the behavior of the tutors (and apparently their self-concept) improved in every case, as judged

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[21]Patrick Lane, Cecelia Pollack, and Norman Sher, "Remotivation of Disruptive Adolescents," Journal of Reading, XV (February, 1972), 351-354.

[22]Cecelia Pollack, Intersensory Reading Method. Book-Lab, Inc., 1968.

by teachers and guidance counselors on the behavior rating scale.

It is apparent that few research projects investigate both reading achievement and self-concept. Indeed, few include all of the data mentioned in the introduction to the present study. The seven cross-age tutoring projects discussed above are representative of the research currently available. Although incomplete in some respects, enough information has been provided to enable the reader to judge the general effectiveness of cross-age tutoring. The tables on the following pages condense the information provided in both sections of this chapter.

Table 1: Same-Age Tutoring Programs

	Program 1	Program 2	Program 3	Program 4
Grade level	2, 3	4	2, 3, 4, 5	Primary (Learning disabled)
Tutor training	Not given	Not given	10 hours	Not given
Hours of tutoring	3¼ hours per week for four months	9 weeks	10 hours	¼ hour per day throughout the school year
Testing instruments	Not given	Hoyum-Sanders	Slosson Oral Reading	Not given
Reading gain by tutees	Significant (Word Knowledge only)	Not significant	Significant	Significant
Reading gain by tutors	Significant (Word Knowledge only)	Not given	Significant	Not given

Table 2: Cross-Age Tutoring Programs

	Program 1	Program 2	Program 3	Program 4
Grade level of tutees	2, 3, 4	Primary	4, 5	1, 2
Grade level of tutors	6, 7, 8	Upper grades	10, 11	3, 4
Tutor training	4½ hours	Not given	About 16 hours pre-service, 2 hours per week inservice	About 3 hours
Hours of tutoring	2½ hours per week for 15 weeks	20 minutes per day throughout the year	2 or 4 hours per week, November to June	2½ to 3 hours per week for six weeks
Testing instruments	Spache Diagnostic Reading Test	Stanford Reading Test, California Test of Basic Skills	See note below	Metropolitan Achievement Test
Reading gain by tutees	Significant	Significant	Not significant	Significant
Reading gain by tutors	Not given	Significant	Significant	Not significant

Note: The New York State Growth in Reading Test was given to tutees, and the Iowa Silent Reading Test to tutors.

Table 2: Cross-Age Tutoring Programs, continued

	Program 5	Program 6	Program 7
Grade level of tutees	1, 2, 3	1	Elementary grades
Grade level of tutors	5, 6	5	8, 9
Tutor training	4 sessions prior to tutoring; 1 each week during tutoring	4 hours	Not given
Hours of tutoring	80 minutes per week for 8 weeks	1½ hours per week for 8 weeks	2 sessions per week for 7 months
Testing instruments	Metropolitan Achievement Test; Word Recognition Test	Gates-MacGinitie	Metropolitan Achievement Test
Reading gain by tutees	Not significant on Metropolitan, significant on Word Recognition	Significant	Significant
Reading gain by tutors	Not significant	Not given	Significant

CHAPTER V

SUMMARY AND CONCLUSIONS

This research project was undertaken to help determine the relative effectiveness of two types of tutoring programs: those in which tutors and learners are in the same class or grade, and those in which tutors are older than learners. Effectiveness of the programs would be judged by the gain in reading achievement experienced by the learners and by their tutors. Changes in the self-concept of tutors and tutees were also to be noted.

In gathering information for this study, reports of previous research on tutoring and tutoring programs were sought. Among the sources surveyed were professional books and journals in the fields of reading, language arts, psychology, learning disabilities, educational administration, and experimental education. The E.R.I.C. Index directed the author to several documents which had not been published elsewhere. Several studies of each type of tutoring program were discussed, and their results compiled in tables.

Because of the lack of complete data available, the effects of same-age and cross-age tutoring as described in the previous chapter cannot be statistically determined. However, logical analysis of the results of the eleven programs discussed does provide useful information.

Tutees made significant gains in word knowledge in each case but one, and their improvement in reading achievement in general was significant in half of the same-age studies and in seventy-one percent of the cross-age reports. Tutors' gains were significant in seventy-one percent of the studies in which these results were listed (in both of the same-age projects and in three of the five cross-age programs). The testing instruments employed in assessing gains are reliable, and those results may therefore be accepted as accurate.

Few of the reports discussed changes in self-concept in either tutees or tutors. The only same-age study which investigated attitude (Slavin) found no significant differences between tutored and non-tutored groups.

Among the cross-age projects, the Soto Street School program resulted in improved self-concept on the part of tutors, according to its administrators. The tutoring program reported by Cloward did not result in significant attitudinal changes for either tutees or tutors, but Duff and Swick found a positive change in attitude for both the tutees and tutors in their study. (The change was not statistically significant, however.) In the study of Lane and others, tutors' self-concept was found to improve, although statistical significance was not mentioned.

Conclusions. Tutoring of low-achieving students by other students, whether of the same age or older, usually results in greater reading achievement gains for the learners than would have come about without the tutoring. An additional important effect is that the tutors also make significant gains in reading in most cases.

While self-concept gains have not been reported in the literature as frequently as reading achievement gains, it is apparent that tutoring often causes positive changes in this area, especially for the tutors.

No study has been found which reported a negative effect (for either tutees or tutors) in reading achievement or self-concept. Many did not result in statistically significant changes, but simply in "positive" changes. Nevertheless, it is clear that students as tutors can be a valuable resource in the classroom, and can help themselves as well.

The fact that seventy-five percent of the same-age and seventy-one percent of the cross-age projects included in this report resulted in significant reading improvement by tutees may indicate that cross-age tutoring is the more effective method. However, because of the lack of complete data, it was not possible to determine the relative significance of the effects of the two types of programs. Therefore, the hypothesis that a significant difference in effectiveness exists can be neither accepted nor rejected.

Recommendations. In completing this report, the author found that there is a noticeable lack of same-age tutoring projects which contain adequate data for analysis. Many studies are involved with the underlying theories of tutoring and their application in specific programs. Others simply describe the organization of their projects, and may give results in very general terms. Many of the cross-age studies are similarly vague as to results, but far more of these studies can be located, and enough information can be found within them to permit conclusions to be drawn.

It is therefore recommended that more same-age studies of a controlled nature be undertaken. In this way information can be gathered which will assist in providing the data needed for a more adequate comparison of the effects of the two kinds of tutoring programs.

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